

CLAIMS

1. A dry cleaning composition comprising densified carbon dioxide and polar solvent in a weight ratio of from 5:1 to 100,000:1, preferably from 10:1 to 10,000:1, surfactant and a hydrophilic fluorescer.

2. A dry cleaning composition according to claim 1, wherein the surfactant is selected from compounds of general formula



wherein R_n - is a densified CO_2 -philic functional group, R is a halocarbon, a polysiloxane, or a branched polyalkylene oxide and n is 1-50, and Z_m - is a densified CO_2 -phobic functional group, and m is 1-50 and at pressures of 101 kPa to 68.9 MPa and temperatures of from -78.5 to $100^\circ C$, the R_n - group is soluble in the densified carbon dioxide to greater than 10 wt. percent and the Z_m - group is soluble in the densified carbon dioxide to less than 10 wt. percent.

3. A composition according to claim 1, wherein the surfactant is present in an amount sufficient to cause the polar solvent to be present as a microemulsion within the densified carbon dioxide.

4. A composition according to claim 3, wherein the polar solvent of the microemulsion has a core droplet size from 2 nm to 10 nm.

5. A dry cleaning composition according to claim 1, wherein the amount of surfactant is from 0.001% to 20%.

6. A composition according to claim 1, wherein the amount of polar solvent is from 0.001% to 20% by weight of the total composition, including the densified carbon dioxide.

5 7. A composition according to claim 1, wherein the hydrophilic fluorescer has a log P of less than 2 or a at least one Brönsted acidic or basic functional group with a pKa of 7 or less.

10 8. A composition to claim 1 wherein the hydrophilic fluorescer is selected from organic fluoescers having one or more hydrophilic groups selected from sulphonate, carboxylate, sulphate, phosphate, phosphonate, phosphinate, hydroxyl, (primary, secondary and tertiary)amino and (poly)alkoxylated
15 groups and mixtures thereof.

9. A composition according to claim 1 wherein the fluorescer is selected from water-soluble and water-dispersible distyrylbiphenyl derivatives, distilbene derivatives, coumarin
20 derivatives, cyanuric chloride/diaminostilbene derivatives and dibenzofuranbiphenyl derivatives and mixtures thereof.

10. A dry cleaning composition according to claim 1 wherein the composition comprises from 0.1 to 1000ppm of fluorescer by
25 weight of the composition.

11. A composition according to to claim 1, wherein the composition further comprises from 0 % to 90 % of hydrotrope by weight of the final composition.

30 12. A composition according to claim 11, wherein the hydrotrope is selected from alkanols, mono- di-, or triethanolamine, polyols and mixtures thereof.

13. A method of preparing a dry cleaning composition according to claim 1, wherein the method comprises preparing a premix of the fluorescer, surfactant and polar solvent, and optionally one or more of any other ingredients, admixing the premix with the densified carbon dioxide, and optionally any other remaining additional ingredients.

14. A method of dry cleaning a textile fabric, wherein the method comprises contacting the fabric with a composition according to any of claims 1 to 12.

15. A method according to claim 14, wherein the densified carbon dioxide is evaporated after the cleaning process.